



A MODEL OF ADMINISTRATIVE SERVICE QUALITY IN HIGHER EDUCATION

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ABSTRACT: *The quest for quality service delivery in higher education has triggered the deployment of quality assurance systems to evaluate service quality. However, it appears that little has been done to develop an empirically validated model that can be used to effectively evaluate administrative service quality in higher education. The aim of this research was to develop an experimentally proven model for evaluating administrative service quality in higher educational institutions. The study adopted the cross-sectional survey method. Three hundred and seventy-six (376) students sampled from six public universities participated in the study. Questionnaire was the instrument for data collection. The questionnaire included 45 items across five domains (service quality perception, satisfaction, loyalty, value, and institutional reputation). Structural equation modeling techniques were used to analyse the data. The findings suggested that the conceptual model was generally valid and reliable. The findings further showed that service quality was a significant predictor of students' level of satisfaction, loyalty and value. The findings additionally showed that satisfaction significantly predicted loyalty and loyalty in turn significantly predicted institutional reputation. This model can be used to evaluate administrative service quality in higher education with a higher degree of precision.*

KEYWORDS: Perceived Quality, Higher Education, Satisfaction, Institutional Reputation



INTRODUCTION

Higher education plays a significant role in the socio-economic development of countries all over the World. Researchers (Magzan & Aleksic-Maslac, 2011) contend that it is key to sustainable national development. Consequently, countries all over the world have put in place quality assurance systems to regulate the conduct of higher education (Bwalya, 2023; Halai, 2013). Thus, quality improvement and quality assurance systems have now become vital in both public and private higher educational institutions (Dehghan et al., 2014; Halai, 2013; Wong, 2012), where maximum efforts have been put in place to improve quality service. The quest for quality improvement seems to have triggered interest in research on higher education quality systems and procedures. Most of these studies tried to use models and related theories on quality service delivery in higher education. Wong (2012) for instance developed an integrated model to examine quality higher education in Australia. Generally, the findings indicated that the conceptual framework had a high level of accuracy, and some of the important routes in the framework were shown to be statistically significant. However, two of the three past experience construct components, in particular, did not mention prior use of or participation with the university.

Yidana et al. (2023a) investigated quality service delivery in higher education based on students' perspectives. The study aimed to determine whether students' expectations of service quality in higher education significantly differed from what they experienced and whether their experience of service quality predicted their satisfaction and loyalty. Results showed that the average mean score of prior expectations of university service quality was significantly higher than the average mean score of experience, suggesting that what students expected of university service quality was higher than what they experienced. The authors recommended that higher education authorities should improve service quality, which is a critical way to enhance students' satisfaction and, for that matter, their loyalty and stay intentions.

Brown and Mazzarol (2009) used the partial least squares to evaluate a model of customer satisfaction and loyalty in a higher education environment. The results showed that student satisfaction, which was predicted by the host university's perceived reputation, predicted student loyalty. Although the perceived quality of "hardware" (such as infrastructure and tangible service pieces) and "humanware" (such as people and procedures) had an effect on value perceived by students, the effect was weak and ambiguous. The most significant element, which strongly predicted perceived value and, to a lesser extent, student satisfaction, was institutional image. Even though the final sample was a good representation of the student population found across the Australian higher education sector, the authors advised that future research should aim to replicate the results using other student populations in different geographic locations and political jurisdictions. Many of the findings, like the association between service quality and humanware, were also ambiguous, suggesting that the path coefficient of the latent variable "Reliability/Responsiveness negative" may potentially point to a suppressive relationship.

In sum, while the aforementioned researchers (Brown & Mazzarol, 2009; Wong, 2012; Yidana et al., 2023a) have advanced our understanding of the various elements of quality in higher education, it seems their research efforts had a number of limitations as enumerated. Again, most of the studies (e.g., Wong, 2012) seem to have used models that focus on the combination of administrative and teaching services. Not much has been done to develop a model that can



be used to specifically evaluate administrative support services in higher education. A model that specifically deals with administrative support service quality in higher education is needed for some reasons. In the first place, administrative support services play a key role in the overall teaching and learning business in a university system (Moore, 2003; Carroll -Barefield, 2006) and yet are often overlooked (Visser & Visser, 2000). Yidana et al. (2023b) reaffirmed the need for evaluation of administrative support for quality assurance by stating that “Learner support is one of the most critical elements in determining the success of distance education.” In support of this claim, Heck (2000) found that administrative units are principally responsible for sustaining, integrating, coordinating, supporting, and supervising the university's primary purposes of teaching and learning, research, and public service. They contend that while administration should not be regarded as a subservient duty to academic activities, it is vital in assuring and enabling the institution's fundamental functions to be completed. Quality assurance of this most vital university service is therefore crucial. The quality of administrative support may not only give necessary and suitable information about the institution's functioning, but it may also serve as a "high stakes" assessment procedure for individual administrators (Heck, 2000).

Thus, this research sought to present a valid and reliable model of higher education administration service quality that could be used to evaluate administrative support services for quality assurance. Taking from the previous models of higher education service quality, this study sought to determine the function of value, loyalty and institutional reputation within the existing framework for administrative service quality and students' satisfaction. With a particular emphasis on the post-admission decision-making process of students, the research evaluated the link between students' perceptions of 6 areas of administrative service quality, their levels of satisfaction, value, loyalty and institutional image. The administrative service areas considered in this research include teaching support services, students' welfare services, students' governance affairs, students' housing/ accommodation, recreational activities and students' records management.

LITERATURE REVIEW

Higher education researchers have utilized models and associated theories to characterize service quality. The SERVQUAL model developed by Parasuraman et al. (1985, 1988) is one of the most widely utilized. In this theoretical paradigm, quality is perceived to be a sort of disposition which is connected but not similar to satisfaction and arises from a direct contrast between expectations and delivery. In support of the model, O' Neill and Palmer (2014) claim that the difference between what students anticipate and their sense of actual delivery characterizes higher education quality. The SERVQUAL model has been used by researchers (Rizos et al., 2022) to investigate the quality of higher education institutes' (HEIs') administrative services. Quality improvement researchers (Cronin & Taylor, 1992; Valencia-Arias et al., 2023) however criticized the SERVQUAL instrument for lacking adequate dimensions to assess service quality in the realm of education. The authors presented another model, SERVPERF, to assess service quality by highlighting performance level features. However, there seem to be limitations specific to SERVPERF. In the first place, it ignores the issue of customer satisfaction. This is so because service performance, rather than the client experience, is the main focus. The second issue is that it is challenging to provide clients with



relevant performance measures. Thirdly, it does not consider how a client's expectations of a service are created or altered. Fourthly, it has problems capturing the subtleties of the client experience. Last but not least, it disregards the customer's ongoing relationship with the service provider.

On the basis of the limitations of the SERVPERP model, Munshi (2019) designed and empirically tested a HESQUAL model of service quality drawing on the SERVPERP and SERVQUAL models. In consonance with literature on service quality, a conceptual model with 72 parameters was created. Data were analysed using exploratory factor analysis on a sample of 200 students. The final model included 5 dimensions and 45 components. Wong (2012) further developed and experimentally tested an interconnected framework that incorporates elements of the HESQUAL model in the context of tertiary education. The integrated model comprised satisfaction, image, trust, and perception of service quality, information, and students' prior experiences. Overall, the findings indicated that the theoretical model had high validity, and the important routes in the model were shown to be statistically significant, with the exception of prior experience impacting service quality. Following the validation of the theoretical model, the authors discovered that knowledge was statistically more important than previous experience as a predictor of service quality. The HESQUAL model has also been used by Photchanachan (2022) to investigate higher education service quality in China.

One remarkable feature of these model-based theories is that higher education quality is treated in a holistic manner. In other words, the various service units, namely administration and teaching, are put together with one model used to describe the two. Even though administrative support services complement teaching services, the two are performed by two different sets of people who may not have the same training to do the same job. The need to have a separate model to describe higher education administration models is therefore undeniable.

The suggested model for this study encompasses all variables utilized in prior studies, resulting in a more comprehensive model for assessing administrative quality service delivery in a higher education context. The point of departure in this current model is its specificity. It is administration specific and focuses on quality issues related to teaching and learning support services, students' welfare services, students' governance affairs, housing services, records management and recreational activities. This study aims to ascertain students' level of satisfaction, value, loyalty and commitment arising from opinions of students concerning the mentioned areas of service quality.

Conceptual Model and Hypothesis

A review of the literature (Gao, 2020; Rizos et al., 2022; Yidana et al., 2023b) on service quality in higher education suggests that the concept of administrative service quality can be conceptualized in so many ways. This study applied seven dimensions of service quality, namely accessibility, reliability, efficiency, responsiveness, sustainability, equity and emotional support to six administrative service areas of teaching and learning support, housing, welfare, recreational activities, students' governance/affairs and records management. Thus, the study sought to determine students' experience of administrative service quality in the six administrative service units, levels of satisfaction, loyalty, value and institutional image. The conceptual model is presented in Figure 1.

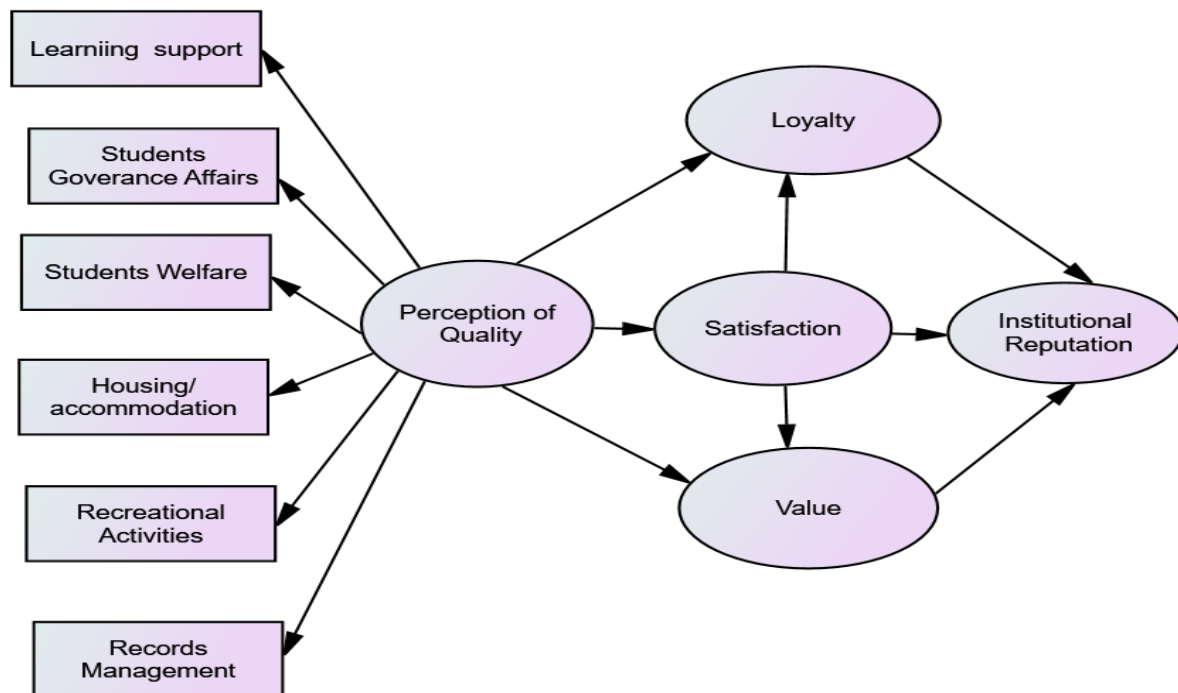


Figure 1: Conceptual Model of Service Quality in Higher Education

Explaining the Model

Link between Administrative Service Quality and Satisfaction: Customer satisfaction is at the heart of every organization. According to Nguyen-Thi et al. (2021), satisfaction occurs when service quality and quantity meet or exceed the client's wants and expectations. The consequence is recurring business and customer loyalty. This study views the student as the main customer of higher education. Thus, students' satisfaction is his or her assessment of the administrative service that meets their wants and expectations (Zeithaml & Bitner, 2000; Borishade et al., 2021). Weerasinghe et al. (2017) argued that service quality is the students' satisfaction as evaluated by the gap between anticipated and delivered quality. Their contention brings to the fore the role of service quality in customer satisfaction. According to Bitner (1990), service quality is the source of customer satisfaction, while customer satisfaction is the reason for service quality. This relationship is supported by research (Belás & Gabconá, 2016; Borishade et al., 2021; Chavan & Ahmad, 2013; Gao, 2020). Thus, without administrative service quality, students' satisfaction might not be possible. Thus, this study's conceptual model hypothesised that administrative service quality predicts students' level of satisfaction (Hai, 2021; Zeithaml & Bitner, 2000). Therefore:

H1: *Administrative service quality positively predicts students' level of satisfaction.*

Relationship between Satisfaction and Loyalty: Oliver (2014) contends that customer loyalty is the commitment of a customer to introduce the company's products to friends, his or her willingness to influence others to use the company's products or willingness to help the company to improve despite environmental impact or marketing practices that may trigger



conversions. According to Sirdeshmukh et al. (2002), customer loyalty is the degree to which a consumer is happy with the product or service offered and is willing to buy again in the future. As a result, loyalty implies that customers may choose to continue a relationship with an existing firm and so may plan to pursue a variety of possibilities. Increasing the utilization of a company's products is one example. Applying this in a higher education context, students' loyalty has to do with their commitment to market the university to the outside world. Saying positive things about the university and their readiness to defend the good name and reputation of the university encapsulates their loyalty to the university. Taking students as the main customers of higher education, research evidence (Leninkumar, 2017) seems to confirm that students' loyalty is the direct effect of customer satisfaction. When students experience good quality service and are thus satisfied, they would perceive the service to be less risky and more profitable or beneficial. This would consequently attract their loyalty and stay intentions. Indeed, many researchers have argued that one of the determinants of student's loyalty is satisfaction (Belás & Gabconá, 2016; Coelho & Henseler, 2012). According to Munari et al. (2013), satisfaction and loyalty are components of absolute loyalty, with satisfaction serving as the starting point for loyalty. According to the conceptual model of this study, student pleasure predicts loyalty. Therefore:

H2: *Satisfaction positively predicts students' loyalty.*

The Link between Administrative Service Quality and Value: Value can be broadly defined as a student's overall assessment of the utility of a service based on experience of what is received and what is given (Zeithaml, 1988). It may be explained as the overall impact that services rendered have had on students' lives and how useful or significant that impact is. Several scholars have looked at the function of customer value in consuming scenarios. For example, Zeithaml (1988) produced data confirming the importance of value in customer purchasing decisions. Means-end paradigm perceived value is a direct antecedent of a purchasing choice and a direct result of perceived service excellence. In a higher education context, value may be explained as the overall impact that services including administrative services have had on students' lives as during their course of stay and how beneficial that impact is. Thus, the model suggests that administrative service quality positively predicts value students derive from the services they consume.

H3: *Administrative service quality positively affects the value students derived from university services.*

Link between Administrative Service Quality and Loyalty: The model hypothesised administrative service quality predicts students' loyalty and stay intentions. When customers experience good quality service and are thus satisfied, they would perceive the service to be less risky and more profitable or beneficial. This would consequently attract their loyalty and stay intentions. Indeed, many researchers have argued that one of the determinants of customer loyalty, particularly in the service industry, is quality service (Belás & Gabconá, 2016; Coelho & Henseler, 2012). Munari et al. (2013) suggests that satisfaction and loyalty are elements of absolute loyalty, with satisfaction serving as the beginning of loyalty. The model suggests that administrative service quality predicts students' loyalty. Therefore:

H4: *Administrative service quality significantly predicts loyalty.*



Relationship between Value and Loyalty: Research on marketing (Patma,m et al., 2020; Woodruff, 1997) suggests that value positively predicts loyalty. Perceived value appears to be a direct predictor of consumer purchase intent. Customer value was considered as a hierarchically structured concept at levels of consumption goals, repercussions, and qualities in Woodruff's (1997) suggested model of customer value hierarchy. Each step of the expectancy-disconfirmation process is where customers add value, according to Woodruff (1997). Customer value, according to Parasuraman (1997), is crucial to comprehending consumer behaviour. In higher education, the value that students derive from administrative service quality predicts their loyalty to the institution. Therefore:

H5: Value significantly predicts loyalty.

Relationship between Satisfaction and Value: The hypothetical model suggests that students' level of satisfaction predicts the value they derive from the administrative services they consume. When students are sufficiently satisfied with the services consumed, they turn to place some premium value on the administrative services as they impact their lives (Dehghan et al., 2014). Thus, the model suggests that satisfaction predicts value. Therefore:

H6: Satisfaction significantly predicts value.

Relationship between Satisfaction and Institutional Reputation: The ultimate goal of quality improvement efforts of higher education administrators is to improve upon its image and reputation. According to Andreassen and Linderstad (1998), individuals create knowledge systems known as schemas to understand their sense of institutional reputation or image. The process of building an image or reputation, according to Johnson et al. (2001), is mental in nature in that thoughts and feelings regarding earlier encounters with an organization are kept in mind and translated into clear understanding based on recorded groupings. As a result, an institution might have several pictures portraying the public's experiences and sentiments. Satisfaction seems to be an assessment of a given service experience. According to Hu et al. (2009), satisfaction has a positive and significant influence on institutional reputation. This is due to the perception that the amount of satisfaction received from each service interaction has an influence on reputation assessments. Therefore, reputation may be derived from the total "transactional outcome" and the subsequent feeling of customers (satisfaction). Satisfaction casts a halo over the institution's image. Students' perceptions about the university increase when they are satisfied. This mindset thus has an impact on the image. As a result, corporate (or institutional) image is the cumulative attitude resulting from contentment. Therefore:

H7: Satisfaction significantly predicts institutional reputation.

Relationship between Loyalty and Institutional Reputation: The model hypothesised that students' level of loyalty/commitments derived from administrative services should lead to improvement in institutional image. Satisfaction is an evaluation of a given service experience. According to one study, loyalty has a positive and significant impact on customer satisfaction, which enhances the company's reputation among Mauritian hotel guests (Hu et al., 2009). This is because it is thought that how satisfied a client is with each service interaction affects their loyalty, which explains how they judge a company's reputation (Nguyen & LeBlanc, 1998). Thus, reputation may be determined from the overall transactional outcome and the following consumer feeling (loyalty). Student satisfaction casts a halo around the institution. According



to this study's model, student loyalty has a significant and positive influence on institutional image. Therefore:

H8: *Loyalty positively and significantly explains institutional image.*

METHODOLOGY

Research Design

The researcher employed the descriptive cross-sectional survey design for the study because the purpose was to present a valid and reliable model of higher education service quality based on students' perspectives. This purpose made it suitable to use the descriptive survey design because, as Cohen et al. (2007) indicated, "such studies look at individuals, groups, institutions, methods and materials in order to describe, compare, contrast, classify, analyse and interpret the entities and the events that constitute their various fields of inquiry." Fraenkel et al. (2012) argued that a common goal of descriptive cross-sectional research is to examine how a large group of individuals feel and behave towards a given subject or problem throughout the course of time. The researcher was only interested in determining students' views with regard to higher education quality without any manipulation of the variables.

Sample and Data Collection

The population for the study was all final year students in public universities in Ghana during the 2020/2021 academic year. This population was targeted for the study because these students had been in the universities for well over three years and had experienced a lot more of university life than the rest of the undergraduate students. Thus, they stood a better chance of giving a valid description of service delivery than the rest of the students.

To sample universities and students for the study, the researcher used multistage sampling, which is a combination of multiple sampling techniques. First of all, the study made use of the stratified random sampling procedure to sample six universities. This sampling procedure's primary goal was to create a sample that accurately represented the population in terms of the relative proportions of persons in various categories, such as geographical setting (Bryman, 2004). Final year students' population in the sixteen (16) public universities was estimated at 25,871. According to Cohen et al. (2007), "when the population size is too big, the researcher gathers information from a smaller group or subset of the population in such a way that knowledge collected is representative of the overall population under investigation." All the 16 public universities in Ghana were thus grouped into Southern and Northern universities. The next step was to sample three institutions—three from each group—at random, for a total of six universities using the simple random sampling technique. The total population of students in the sampled universities stood at 15,471.

In each of the universities, the list of all final year students was obtained and stratified into male and female students. To guarantee that each student had an equal chance of being chosen for the research, a simple random sampling procedure was utilized for student selection in each of the strata. Thus, a representative number of male and female students was randomly selected depending on the size of the population in each stratum. Fraenkel et al. (2012) asserted that for the sample to be deemed representative and credible, a minimum proportion of students,



depending on the size of the class, must be present. In all, a total of 376 students, made up of 213 males and 163 female students from the six public universities, were sampled to take part in the study. The sample size was determined using the Krejcie and Morgan (1970) table of sample size determination.

Instrument: For the study, the researcher employed a questionnaire to gather data. According to Cohen et al. (2007), a questionnaire is a popular and effective tool for gathering survey data because it provides structured, numerical data and can be administered without the researcher present. This is true even though a variety of instruments could have been used for data collection. To provide a simple and rapid answer to the questionnaire items, each section's items were composed entirely of closed-ended statements using the Likert Scale: strongly agree (SA), agree (A), disagree (D), and severely disagree (SD) formats.

The instrument was developed based on the recommendation of Churchill's (1979). The first step as recommended by the author was the review of literature. Literature related to previous models of higher education quality was reviewed and questionnaire items covering the various domains of quality in higher education (teaching and learning support, student's governance affairs, student's welfare services, recreational activities, housing and accommodation) were developed. Focus group discussions were also held with students to solicit from them what their expectation or views of quality under each of the domains, their satisfaction, value and what their views were. A 56-item questionnaire which incorporated the output of literature review and focus group discussions was then developed.

The next step was expert validation of the instrument. Four experts in the field of quality assurance at the C. K. Tedam University of Technology and Applied Sciences were contacted to go through and validate the instrument. Each of these experts worked independently after which the four came together to discuss and finalize the instrument. Eleven (11) questionnaire items were removed either because they were ambiguous or because of duplication of others. Items that were not clear were also reworded. The final set of questionnaire items after this stage was a 45-item questionnaire.

Pilot Testing: The 45-item questionnaire was then pilot tested based on the recommendation of Churchill's (1979). The pilot test was done at the Tamale Technical University, a public university in the Northern Region of Ghana. A sample of 215 students was taken from 1,751 students' population using stratified and simple random sampling techniques. The participants comprised 115 males and 100 females. Study participants were asked to rate the quality of higher education administration on a 4-point scale of "Strongly Agree = 4", "Agree = 3", "Disagree = 2", and "Strongly Disagree = 1." The questionnaire was administered on the students by the researcher himself. Two hundred and seventeen (217) questionnaires were sent out by the researcher himself. Out of this number, 183 were duly completed and returned. The completed questionnaire was inputted into SPSS software version 20 for the next stage of the validation process.

Data Analysis (Pilot Test)

Exploratory Factor Analysis (EFA): The next stage in the instrument development process involved refining and validation of the constructs using exploratory factor analyses. The main aim of the EFA was to identify and measure the latent variables (quality higher education variables) that could not be measured directly (Hair et al., 2010). The EFA involved two



processes. In the first place, the factorability of data was determined using the Determinant, KMO and Bartlett's test of sphericity. An essential measure for multicollinearity or singularity is the value of the determinant. The association matrix's determinant should be higher than .00001. It would be crucial to look for combinations of variables where $r > .8$ and to take into consideration removing them from the study if the determinant value is less than this value. The Kaiser-Meyer-Olkin (KMO) Test evaluates the data's suitability for factor analysis. The test evaluates the model's overall sampling adequacy as well as the sampling adequacy for each variable (Hair et al., 2010). Additionally, the statistic is a representation of how much of the variation among the factors may be shared variance. The more suitable your data is for factor analysis, the smaller the percentage. KMO numbers between 0.8 and 1 denote sufficient sampling. The test statistic further shows how much variation or overlap there is between two sets of factors. To ascertain whether the correlation matrix is an identity matrix, Bartlett's test is used (where all correlation coefficients are 0). If the number is significant (less than .05), the data do not generate an identity matrix, showing that there are sufficient connections between the variables to carry out the factor analysis. The test's findings also show that multicollinearity is likely because general correlations between factors are not very high (Hair et al., 2010).

The second stage involved a test to determine whether the data met bivariate normality assumption for exploratory factor analysis. For each set of variables, the data should have a bivariate normal distribution, and the observations must be unrelated. Examination of the "normal Q-Q plots for all the variables was carried out to test for normality of the data set. The normal Q-Q plots for all the variables shows that the distribution for all the scores were closer to the straight line. In any scenario, the central limit theorem asserts that the distribution of the sample means will be roughly normally distributed if a researcher has a population with mean and standard deviation and draws sufficiently enough random samples from the population with replacement. With the use of random sampling technique, the sample size of 376 was deemed large enough to satisfy this condition.

The next stage in the exploratory factor analysis was the extraction of the number latent variables. Scree plot was used to determine the number of latent variables. A scree plot is a two-dimensional graph which has eigen-values on the y-axis and factors on the x-axis. The analysis yielded five (5) latent variables/factors. The researcher conducted a second factor analysis after the number of factors were extracted to determine the loadings for each factor. There are about five basic extraction methods that can be used to get the factor loadings. They are the principal component analysis (PCA), the maximum likelihood method, alpha factoring, image factoring and principal axis factoring. If only a few iterations are carried out, Snook and Gorsuch (1989) recommends using the principal axis (not really possible in most packages). The PCA can produce inaccurate population loading values in small datasets. The principal axis method was chosen as the initial solution because of this.

The loadings were rotated after obtaining the initial solution. Rotation is a technique for increasing high loadings and reducing low loadings to create the simplest structure feasible. Rotation can be divided into two categories: horizontal and asymmetrical. Although it is rarely a logical assertion about factors in the social sciences, orthogonality refers to the presumption that the factors are uncorrelated with one another. Oblique rotation derives factor loadings from the presumption that the factors are linked, which is likely the case for the majority of measures. So, in addition to providing the loadings, oblique rotation also provides the connection between the variables. Thus, oblique rotation was employed in this research. The researcher went ahead



to conduct the main study after the pilot study and validation process. The 45-item questionnaire was reduced further to 38 after the pilot study and factor analysis.

Confirmatory Factor Analysis: Answered questionnaires were screened to identify and eliminate incomplete and void questionnaire items. After this, the data were coded and entered into the Statistical Product for Service Solutions (SPSS) version 20 for procession. The next step was to develop precise and trustworthy measures for each of the dimensions and study their causal relationships. The Cronbach alpha coefficient was used to determine the structures' reliability. Cronbach's alpha is recognized as "one of the most relevant and widespread statistics in research concerning test construction and usage" (Cortina, 1993 p27) to the point that its application in multiple-item assessment research is routine (Schmitt, 1996). Alpha is frequently used in the formulation of measures used to assess attitudes and other emotional categories (Taber, 2017). The Cronbach's Alpha Coefficient is between 0 and 1. Support for the five-factor model needs alpha = .70 or higher reliability for each scale (Abraham & Barker, 2014).

Following the proposal of Hair et al. (2006), confirmatory factor analysis was employed to assess the hypothesis and the fitness of both the measurement model and the structured model. Confirmatory factor analysis (CFA) is a multivariate statistical approach for determining how effectively variables measured indicate the number of constructs. In general, the CFA is utilized when a prior investigation (exploratory factor analysis) has shown the instrument's dimensionality. Hair et al. (2006) proposed numerous model fit indices to measure data fitness to postulated models. These indices include the Tucker Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Chi Square, Goodness of Fit Index (GFI), and Comparative Fit Index (CFI).

FINDINGS/RESULTS

Exploratory Factor Analysis

Tests to Determine Suitability for EFA (Factorability of Data): The data were first screened for univariate outliers. No extreme univariate outliers were found. The Determinant, KMO, and Bartlett's test of sphericity tests were performed for all five dimensions to determine the applicability of factor analysis. The determinant of the correlation matrix was 1.995E-008, indicating good multicollinearity of the various items over the lower threshold of 0.0001 (Field, 2018). This suggests high intercorrelations among the various items of each of the constructs. Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy test at .832, which was higher than the often-proposed value of .6 (Tabachnick & Fidell, 2013), and the significance of the Bartlett's test of sphericity was found ($2(231) = 7301.840, p = .001$). It was also found that the anti-image correlation matrix's diagonals were all greater than 0 indicating that each item in the constructs had some common variance (Tabachnick & Fidell, 2013). The communalities were all greater than .5. Thus, the 45-item questionnaire data were deemed appropriate for exploratory factor analysis.

Test of Bivariate Normality Assumption: A test for bivariate normality of the data was done using the normal Q-Q plots by means of SPSS software version 20. The normal Q-Q plot is presented in Figure 1. From Figure 1, the normal Q-Q plots for all the variables shows that the distribution for all the scores was closer to the straight line. In any case, the central limit



theorem states that “if a researcher has a population with mean μ and standard deviation σ and takes sufficiently large random samples from the population with replacement, then the distribution of the sample means will be approximately normally distributed.” With the use of random sampling technique, the sample size of 487 was deemed large enough to satisfy this condition.

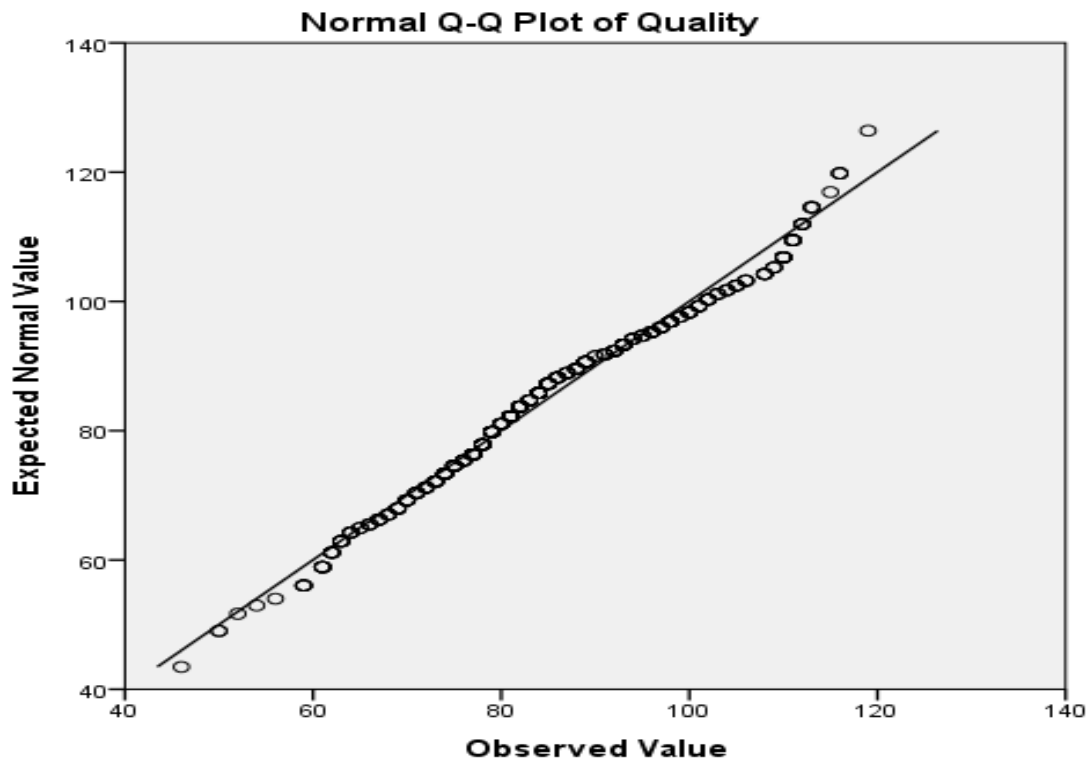


Figure 2: Normal Q-Q Plot for Students Perception of Quality Higher Education Data Set

Results of Exploratory Factor Analysis: The 45 items were condensed into 5 factors. Scree plot was used to determine the number of latent variables. The 5-factor Scree-Plot is presented in Figure 3.

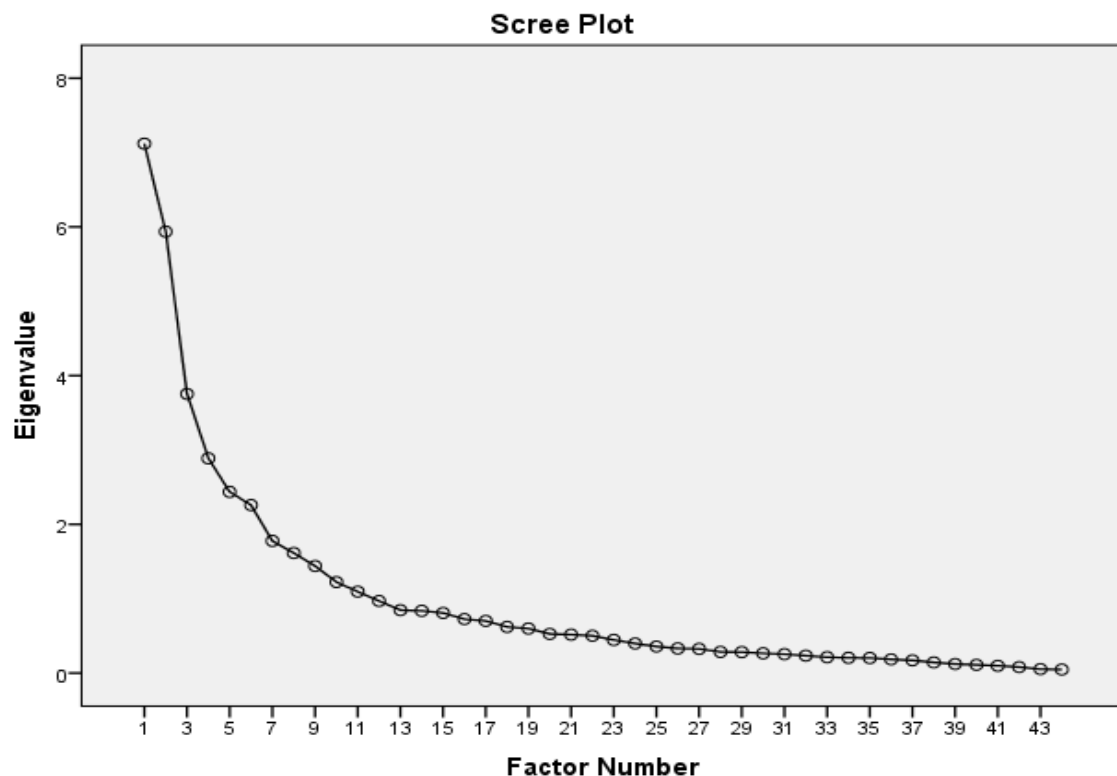


Figure 3: Scree Plot of 5-Factor Administrative Service Quality Model

As can be observed in Figure 3, the scree plot flatness is pronounced after the 5th component (factor) suggesting that only 5 factors were sufficiently loaded onto by the various items. Due to its previous theoretical support, the “levelling off” of Eigen-values on the scree plot (see Figure 2) after the fifth factor, the insufficient number of primary loadings, and the difficulty of interpreting the sixth and subsequent factors, the 5 factors solution, which explained 78.8% of the variance, was chosen. With these results the 5-factor model was deemed fit for further parametric analysis. Consequently, the 45-items were subjected to exploratory factor analysis. Appendix 1 shows the factor loading.

Results of Validity and Reliability Test: A test was further conducted to determine convergent validity, Cronbach Alpha and composite reliability of the data set. The results are presented in Table 2.

**Table 2: Convergent Validity and Composite Reliability Test Results**

Indicator	Latent Variable	Standardized Loading	AVE	Alpha	Composite Reliability
LSS	Learning Support Services	.795			
SGAS	Students Governance Affairs	.767			
SWS	Students Welfare Service	.685			
ACCS	Accommodation/Residential	.577			
RES	Recreational Activities	.844			
RMS	Records Management	.880	0.758	.842	0.674
SATISF1	Students Level of Satisfaction	.700			
SATISF2	Students Level of Satisfaction	.661			
SATISF3	Students Level of Satisfaction	.580			
SATISF4	Students Level of satisfaction	.592	0.633	.807	0.676
RPT1	Reputation	.807			
RPT2	Reputation	.744			
RPT3	Reputation	.787			
RPT4	Reputation	.736	0.7685	.921	0.642
Value1	Value	.886			
Value2	Value	.763			
Value3	Value	.860			
Value4	Value	.711	0.805	.843	0.644
Loyalty1	Loyalty	.824			
Loyalty2	Loyalty	.874			
Loyalty3	Loyalty	.828	0.8505		
Loyalty4	Loyalty	.876		.865	0.666

Source: Field data, 2022

The results suggest strong internal consistency of each of the items. All the Cronbach Alpha values as seen in the table are above the .70 threshold (Abraham & Barker, 2014). The analysis suggests that the 59 items clearly measure the 5-factor model with strong internal consistency. The composite reliability values range between 0 and 1. The higher the composite reliability, the higher the level of reliability. According to Hair et al. (2014), it is acceptable if composite reliability values are between 0.60 and 0.70. As seen in Table 2, the average values range between 0.60 and 0.70 indicating strong internal consistency. The AVEs of each of the constructs are more than 0.5. This suggests strong convergent validity of the various constructs. For discriminant validity, the indices for each of the constructs must be higher than the correlation indices of the respective constructs.

Confirmatory Factor Analysis: Confirmatory factor analysis was performed to first evaluate the model's suitability and then to verify the hypothesis. Numerous model fitness indices, including the Chi Square, Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) were calculated for the measurement model. The results are presented in Table 3.



Table 3: Model Fit Indices

Model	CMIN	Df	P	CMIN/DF	GFI	NFI	CFI	RMSEA
Default Model	501.553	225	.093	1.773	.873	.932	.961	.054
Saturated Model					1.00	1.00	1.00	1.00
Independent Model	7399.549	276		26.810				.214

Source: Field data, 2022

The ratio of CMIN/DF, goodness-of-fit index (GFI), normed fit index (NFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) are all displayed in Table 3. All of the model fit indices meet the requirements (Hair et al., 2006). The CMIN/DF is 1.773; $p = 0.093$ (spec. 3.0); $GFI = 0.873$ (spec. > 0.90); $NFI = 0.932$; $CFI = .961$ (spec. > 0.90); and $RMSEA = 0.054$ (spec. 0.05). Inferring from this, it was decided that the students' support service quality measurement model was a good fit model and could be utilized to conduct additional analysis of the structural connections between the latent independent and latent dependent variables. Figure 4 presents the measuring model.

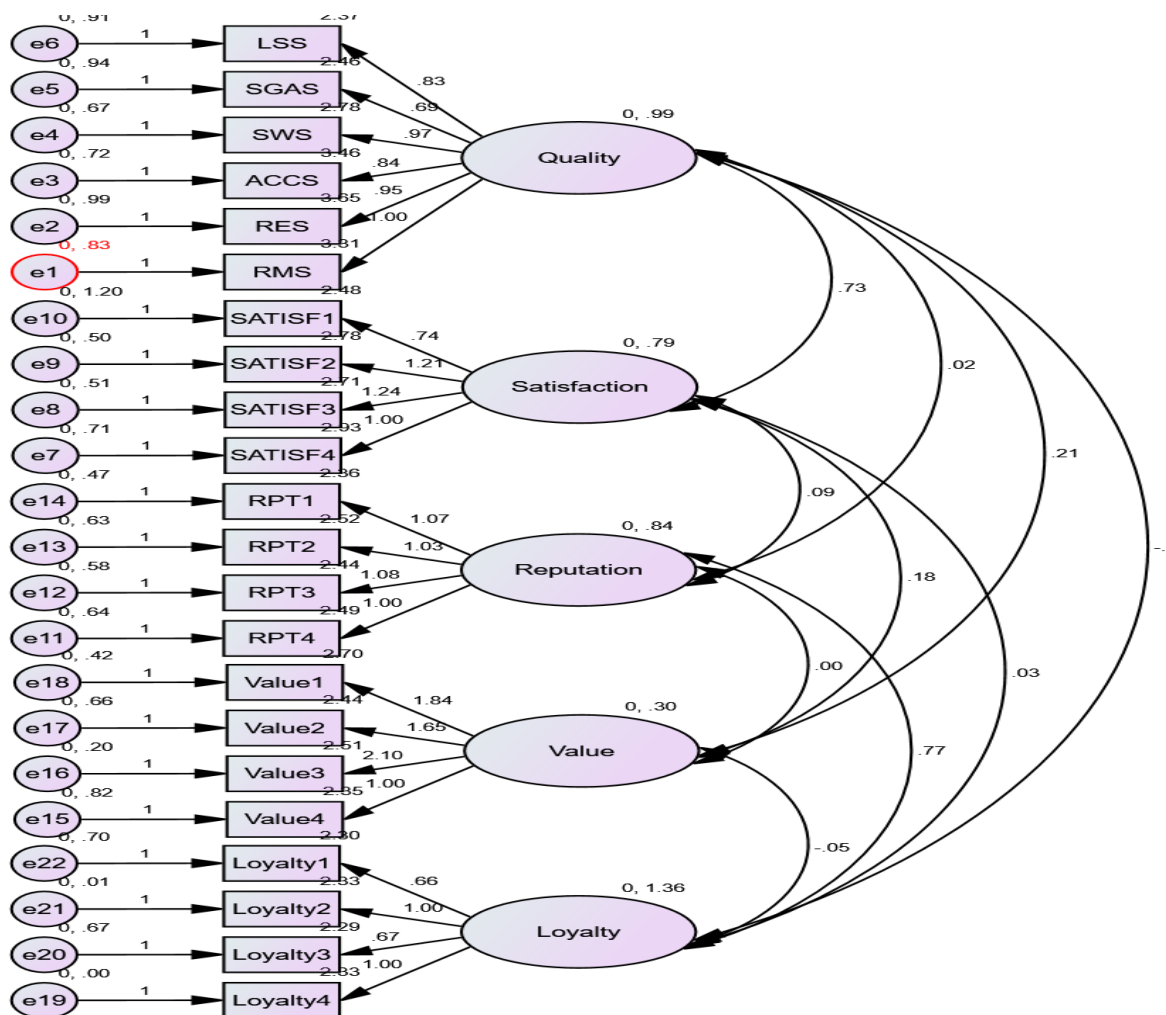


Figure 4: Measurement Model of Students' Support Services in Higher Education



Testing the structural model's fitness was the next stage in the confirmation procedure. The chi-square, goodness of fit index, comparative fit index, Tucker Lewis index, and root mean square error of approximation are once more used (RMSEA). The outcomes are shown in Table 4.

Table 4: Structural Model Fit Indices

Model	CMIN	DF	P	CMIN/DF	GFI	NFI	CFI	RMSEA
Default Model	501.553	225	.093	1.773	.873	.932	.961	.054
Saturated Model					1.00	1.00	1.00	1.00
Independent Model	7399.549	276		26.810				.214

Source: Field data, 2022

Calculations were made for the RMSEA, the CMIN/DF ratio, the GFI, the NFI, and the CFI. The entire model fit indices fall within allowable bounds (Hair et al., 2006). The GFI is 0.873 (spec. > 0.90), the NFI is 0.932 (spec. > 0.90), the CFI is .961 (spec. > 0.90), and the RMSEA is 0.054; the CMIN/DF ratio is 1.773 (spec. 0.05). The support service quality measurement model created by the students was therefore determined to be a good fit model and could be used to carry out additional analysis of the structural relationships between the latent independent factors and the latent dependent variables. The structural relationships among the various elements that constitute the model are presented in Figure 5.

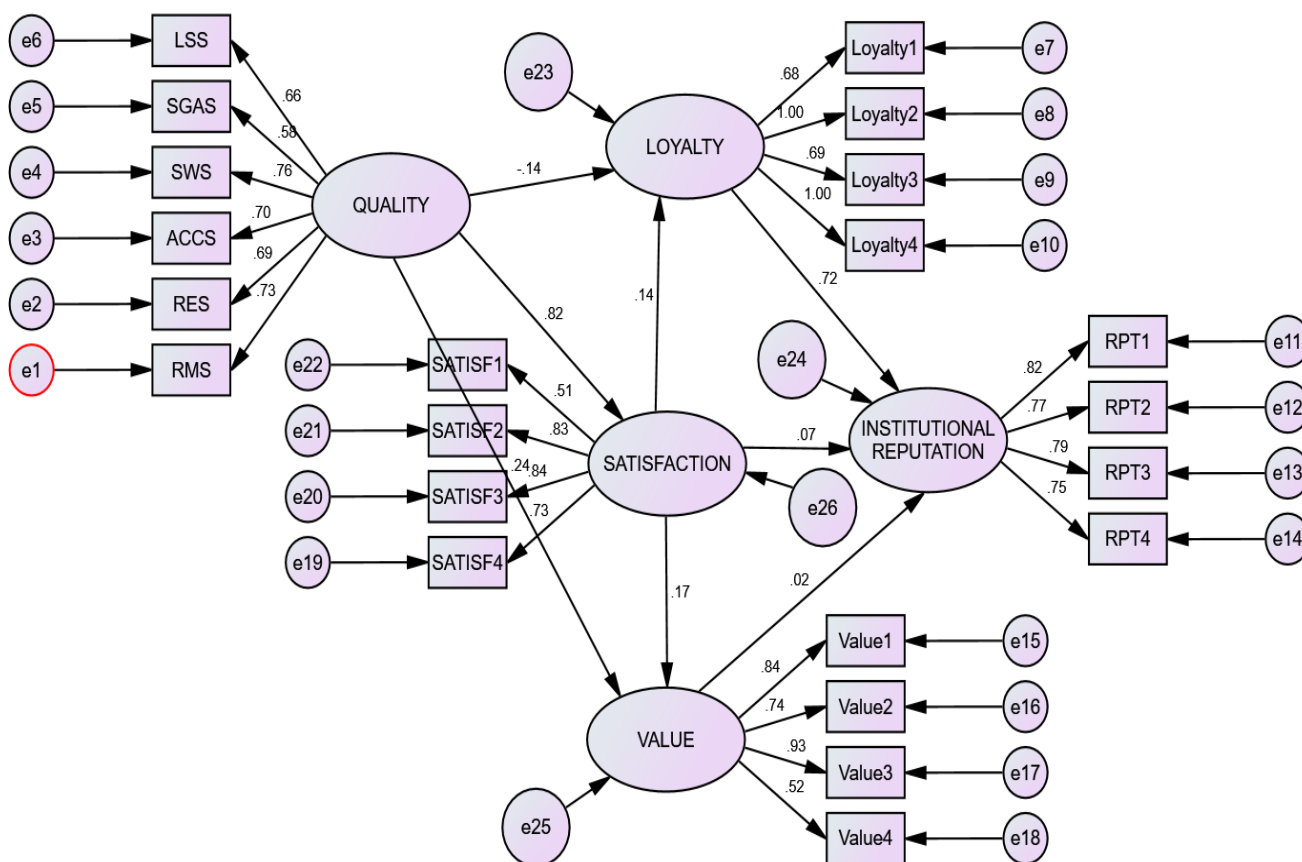


Figure 5: Structural Model of Students Support Services in Higher Education



Hypothesis Test Results: The research investigation was led by eight hypotheses concerning the causal links between the constructs. The hypothesis test results are shown in Table 5. Essentially, the findings indicate that five hypotheses were statistically significant and positive.

Table 5: Hypothesis Test Results

<i>Hypothesis</i>	<i>Direction of relationship</i>	<i>B</i>	<i>Sig</i>	<i>Supported (Yes/No)</i>
<i>H1</i>	Quality → Satisfaction	.82	p = .01	Yes
<i>H2</i>	Quality → Value	.24	p = .05	Yes
<i>H3</i>	Quality → Loyalty	.14	p = .04	Yes
<i>H4</i>	Satisfaction → Reputation	.07	p = .62	No
<i>H5</i>	Satisfaction → Loyalty	.14	p = .01	Yes
<i>H6</i>	Satisfaction → Value	.17	p = .03	Yes
<i>H7</i>	Loyalty → Reputation	.72	p = .01	Yes
<i>H8</i>	Value → Reputation	.02	p = .58	No

Source: Field data, 2022

As seen in Table 5, the five most significant paths are H1 (quality students' support services determining students' level of satisfaction), H7 (loyalty determining institutional reputation), H2 (quality students support services determining value), H6 (satisfaction determining value), and H5 (satisfaction determining loyalty). H1, H7, H2, H6, and H5 have standardised path coefficients of 0.82, 0.72, 0.24, .17 respectively. They are found significant at a confidence level of 0.05. Hypothesis H4 is statistically insignificant but positive. H8 (reputation determining value) is likewise positive but statistically insignificant. The findings show that the latent variables have a significant predictive capacity of students' support service quality, satisfaction, loyalty, and value.

DISCUSSION

This study sought to discover and validate a model that could potentially be used to evaluate students' support administrative services in higher education. Exploratory factor analysis suggested that five sub-dimensions constituted quality students support services. They include learning support, students' welfare, records management, students' governance, housing and recreational service quality. Yidana et al. (2023) similarly found learning support, student's welfare, records management, student's governance, housing and recreation as significant dimensions of administrative support service. These services are critical and play a complementary role in the effective teaching and learning in higher education. Results of the study further indicate that quality administrative services significantly predict students' level of satisfaction, loyalty and value. Loyalty in turn significantly predicts institutional reputation whereas satisfaction predicts loyalty. This means that students' level of satisfaction, loyalty, value and institutional reputation depend on the quality of administrative support services. To improve institutional reputation for instance, authorities of high education institutions must first of all improve the quality administrative support service. The results confirm the findings of Hu et al. (2009) and Javed et al. (2021) who reported that loyalty has a positive and significant impact on customer satisfaction, which enhances the company's reputation. The



results are also in tandem with the argument of Weerasinghe et al. (2017) that service quality is customer satisfaction as evaluated by the gap between anticipated and delivered quality. The findings additionally confirm those of Halai (2013), Yidana et al. (2023) that satisfaction occurs when service quality and quantity meet or exceed the client's wants and expectations. Thus, the effect of satisfaction is recurring students' loyalty to the university (Rua, 2020). The results further confirm the findings of Dehghan et al. (2014) of the predictive power of students' support services quality on perceived value placed on university services. Similarly, researchers (Belás & Gabconá, 2016; Coelho & Henseler, 2012) have argued that one of the determinants of customer loyalty, particularly in the service industry, is quality service. This means that administrative service quality should be at the heart of every institution of higher learning. It further suggests that to improve students' satisfaction and commitment, higher education authorities will have to improve upon the quality of administrative support services.

Finally, the results suggest that the 5-factor model (administrative service quality, satisfaction, loyalty, value and institutional reputation) is valid and reliable as all the indicators were all positive and significant. As emphasized by Sirdeshmukh et al. (2002), students' loyalty is the degree to which they are satisfied with the administrative support service provided. This goes a long way to influence them to either return to the university for further studies or recommend it to friends and relatives. Thus, it behooves higher education institutions to improve students' level of satisfaction with the services they provide so as to earn their loyalty or stay intentions. Institutional image is also fundamental as suggested by the results. This, since customer satisfaction improves institutional image concerted efforts, should be made to improve administrative service quality so as to increase the level of satisfaction of students. This will in turn improve the image of higher education institutions. The rationale for this is that the amount of pleasure gained from each administrative service interaction is thought to have an impact on image assessments. Thus, the image may be derived from the total transactional outcome and the following mood of students (e.g., satisfaction). Thus, student happiness attracts loyalty and has a halo effect on the institution's reputation. Students' sentiments and loyalty toward the university improve when they are satisfied. This attitude then has an impact on the university's reputation. As a result, corporate (or institutional) image is the cumulative attitude resulting from contentment. Authorities of higher education should pay particular attention to improving the quality of learning support, students' governance, welfare and security, housing and recreational activities (dimensions of students support services). Satisfaction will improve institutional image which will make the universities a centre of attraction for prospective customers (students).

CONCLUSION

In the context of higher education, this study has developed a structural model that takes into consideration the links between the causes and effects of perceived service quality. Learning support, students' welfare, students' governance, records management, housing and recreational activities constituted the sub-dimensions of students' perceived quality measures. The consequent factors are satisfaction, loyalty, value, and institutional reputation. The model was tested on 376 university students from varied backgrounds using structural equation modeling. The findings show that the conceptual framework is generally accurate and that all of the model's essential routes are statistically significant. Students' perception of quality



administrative support services, level of satisfaction, loyalty, value and institutional reputation are indispensable if we actually need to know the overall quality assessment of administrative support services in higher education. This model can effectively be used to evaluate administrative support services in higher education with a higher degree of accuracy.

RECOMMENDATIONS

The study recommends that higher education authorities should improve upon students' learning support, welfare, governance, records management and recreational activities in order to improve upon their level of satisfaction, loyalty, value and institutional image. As main customers of the university system, when students are well satisfied, they can sell the university out to the consuming public which will attract more prospective applicants to the university. Further studies on faculty evaluation of administrative support services are recommended.

LIMITATIONS

The relationship between value and institutional reputation was found to be weak. Additionally, regression coefficients for loyalty indicator 2 and 4 were found to be 1.00 which is quite unusual. Thus, care must be taken when interpreting the results. Again, since the study was based on perceptions which happened to be the opinions of students, care must be taken when generalizing the results because opinions may not necessarily be factual. Finally, the model might not be a very perfect model of describing administrative support services in higher education owing to unidentified measurements and computational errors.

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APPENDIX

Appendix 1

	<i>. Factor Loadings</i>				
	Components				
	1	2	3	4	5
LSS		.795			
SGAS		.767			
SWS		.685			
ACCS		.577	.		
RES		.844			
RMS		.880			
SATISF1			.700		
SATISF2			.661		
SATISF3			.580		
SATISF4			.592		
RPT1	.807				
RPT2	.744				
RPT3	.787				
RPT4	.736				
Value1				.886	
Value2				.763	
Value3				.860	
Value4				.711	
Loyalty1					.824
Loyalty2					.874
Loyalty3					.828
Loyalty4					.876